



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/497,021

02/01/2000

Gregg S. Goyins

10992292-1

6980

22879

7590

07/26/2005

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

NGUYEN, KEVIN M

ART UNIT

PAPER NUMBER

2674

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/497,021

Applicant(s)

GOYINS ET AL.

Examiner

Kevin M. Nguyen

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is made in response to applicant's argument filed on 05/09/2005. Claims 1-28 are original or previously presented, and claims 1-28 are currently pending in the application. Applicant's arguments, see pages 7-14, with respect to the rejections of claims 1-28 under the statutory basis for the previous rejection have been fully considered and are not persuasive. Therefore, the rejection has been maintained.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 6-11, 20, 24-26 and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Kahn et al (US 5,080,467).

4. As to claims 1, 20, 24, Kahn et al reviews a conventional liquid crystal display (LCD) device associated with a method, the conventional LCD device comprising:

a first electrodes 16 (fig. 1), a second electrode 18 (fig. 1), a liquid crystal layer 20 (a layer of liquid crystal material, fig. 1), an electrical current pulse through the electrode is used to generate heat in the liquid crystal (see fig. 1, col. 2, lines 45-47).

5. As to claim 2, Kahn et al reviews the electrical current pulse through the electrode is used to generate heat in the liquid crystal (see fig. 1, col. 2, lines 45-47).

Thus, the difference of electric potential between two points of a conductor carrying a constant current.

6. As to claim 4, 25, Kahn et al reviews the electrodes 16 and 18 serve to allow application of an electric field in a direction essentially normal to the liquid crystal layer (col. 2, lines 5-7). Thus, the first and second electrodes 16 and 18 apply a uniform electric field across the liquid crystal layer 20.

7. As to claims 6, 26, Kahn et al reviews a signal from a voltage source 22 is applied across one of the electrodes (col. 2, lines 53-55). Thus, the difference of electric potential between two points of a conductor carrying a constant current.

8. As to claim 7, Kahn et al reviews the electrodes 16 and 18 are transparent material (col. 2, lines 3-4).

9. As to claim 8, Kahn et al reviews a signal from a voltage source 22 is applied across one of the electrodes (col. 2, lines 53-55). Thus, the difference of electric potential between two points of one of electrodes 16 or 18.

10. As to claim 9, Kahn et al reviews AC voltages as wells as DC voltages (col. 3, line 20). Thus, AC voltage is an alternating signal.

11. As to claims 10, 28, Kahn et al reviews DC voltages including a positive and a negative of the difference of electric potential between two points of one of electrodes 16 or 18. Thus, the positive (+) and the negative (-) are symmetrically opposite bipolar signals.

Art Unit: 2674

12. As to claim 11, Kahn et al reviews the image projection system (col. 2, lines 15-13) which includes the liquid crystal material in the cell 10 defined the polarizer (col. 2, lines 24-25).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 3, 5, 21, 22, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kahn et al in view of Ferguson et al (US 3,410,999).

15. As to claim 3, Kahn et al reviews all of the claimed limitations of claim 1, except for the polarizer is a polarizing switching of an electronic color switch.

However, Ferguson et al teaches a related liquid crystal layer 26 which includes red, green, and blue (col. 4, lines 43-45).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide Kahn's liquid crystal layer including red, green and blue, in view of the teaching in the Ferguson's reference, because this would provide the color display for the liquid crystal display screen.

16. As to claim 5, Ferguson et al teaches the switching units 40 and 50 (see fig. 2) which select no electrical current pulse through the electrode is not used to generate heat in the liquid crystal layer 32.

Art Unit: 2674

17. As to claim 21, 27, Ferguson et al teaches the switching units 40 and 50 (see fig. 2) which defined a first contact and a second contact.

18. As to claim 22, Ferguson et al teaches the switching units 40 and 50 (see fig. 2) which control the current flowing through the electrodes 28 and 22 (see fig. 2).

19. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson et al in view of Kahn et al, and further in view of Kubota et al.

20. As to claim 23, Ferguson and Kahn et al teach all of the claimed limitation of claim 20, except for a set of amplifiers.

However, Kubota et al teaches a related LCD device which includes two amplifiers (see fig. 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide two amplifiers taught by Kubota for Ferguson's LCD device because this would provide the most suitable voltage to be supplied to the LCD device, improve the image being displayed, while fabricating the driver circuitry at low cost as taught by Kubota (col. 6, lines 1-8).

21. Claims 13, 14, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ferguson et al in view of Kahn et al.

22. As to claim 13, Ferguson et al teaches a liquid crystal display LCD device associated with a method, the LCD device comprising:

- a. a liquid crystal layer 26 (fig. 2) defined a switchable polarizer.
- b. A first driving mode defined below:

In order to display an image, heat must be applied to the element 26. The switch 50 would be connected to the terminal 52 as shown in fig. 2 and the switch 40 would be connected to the terminal 42 as shown in fig. 2. A current corresponding to the source 56 and the video source 58 would be applied across the element 26. The current flowing in the resistance layer 24 of the element 26 would cause heating in accordance with the amount of current (col. 4, lines 30-40).

- c. A second driving mode defined when both switches 40 and 50 are not connected to the current source 56 and video source 58 (fig. 2).
- d. The current source 56 connected series the conductive electrodes 22 and the conductive electrodes 28. Thus, the difference of electric potential between two points of a conductor carrying a constant current.

Ferguson et al teaches all of the claimed limitation of claim 13, except for applying a first voltage signal and a second voltage signal apply to the first electrode and the second electrode.

However, Kahn reviews a related LCD device which includes an AC voltages as well as by DC voltages (col. 3, lines 20) applied to a first electrodes 16 (fig. 1), a second electrode 18 (fig. 1) of the LCD device. AC or DC voltages including a positive and a negative of the difference of electric potential between two points of one of electrodes 16 or 18. Thus, the positive (+) and the negative (-) are symmetrically opposite bipolar signals. Therefore, AC or DC voltage include the first voltage signal applying to the first electrode and the second voltage signal applying to the second electrode.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide the DC voltage source reviewed by Kahn for LCD device of Fergason, because this would provide the voltage for the LCD device.

23. As to claim 14, Fergason et al teaches the current source 56 (fig. 2) which couples to the electrodes 22 and 28 (fig. 2). Fergason et al teaches all of the claimed limitation, except for two current sources. Absent a showing of criticality it would have been within the level of skill in the art and obvious to one having ordinary skill to engineering design making separable the current source of a well-known element is normally not directed toward patentable subject matter as desired as was judicially recognized. A making separable is generally recognized as being within the level of ordinary skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179 (PTO Bd. Of Int. 1969).

24. As to claim 16, Kahn et al reviews AC voltages as wells as DC voltages (col. 3, line 20). Thus, AC voltage is an alternating signal.

25. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fergason et al in view of Kahn et al, and further in view of Hong et al (US 4,820,933).

26. As to claim 15, Fergason et al and Kahn teach all of the claimed limitation of claim 13, except for the voltage signals apply to the electrodes coupling each electrodes to an output of an amplifier.

However, Hong et al teaches a related LCD device 5 which couples two buffers 4A and 4B to each electrodes 12A and 12B (see fig. 3, col. 4, lines 30-31).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide LCD device 5 which couples two buffers 4A and 4B to each electrodes 12A and 12B taught by Hong et al for Fergason's LCD device because this would reduce the reflecting light directed to the viewer as taught by Hong et al (col. 8, lines 67-68).

27. Claims 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al (US 5,74,155).

28. As to claim 17, Kubota teaches a LCD device comprising:

- e. A scan driving line driving circuit includes at least a first electrode (+) and a second electrode (-) see fig. 4.
- f. A liquid crystal layer inherent is between two electrodes.
- g. A current supply circuit 13b includes a first current source 16 coupling to the first electrode (+) (see fig. 4)
- h. A current supply circuit 13b includes a second current source 16 coupling to the first electrode (-) (see fig. 4) a signal from a voltage source 22 is applied across one of the electrodes (col. 2, lines 53-55). Thus, the difference of electric potential between two points of the first electrode (+) and the second electrode (-) carrying a constant current in magnitude.
- i. A current supply circuit 13b includes two amplifiers (two buffers) coupling to the first electrode (+) and the second electrode (-) (see fig. 4), and driving voltage VGH and VGL to the first electrode (+) and the second electrode (-) (see fig. 4)

Art Unit: 2674

29. As to claim 18, Kubota teaches a current supply circuit 13b includes two amplifiers (two buffers) coupling to the first electrode (+) and the second electrode (-) (see fig. 4), and driving voltage VGH and VGL to the first electrode (+) and the second electrode (-) (see fig. 4).

30. As to claim 19, Kubota teaches two amplifiers 14 (two buffers) (fig. 2) receiving different polarization drive signal VGH' and VGL' (see fig. 2) and a reference voltage signal VSS (see fig. 4).

Response to Arguments

31. Applicant's arguments filed 05/09/2005 have been fully considered but they are not persuasive.

32. In response to applicant's argument that claims 1, 20 and 24 recite "a switchable polarizer that has the first and second electrodes conducting current to heat the polarizer." Examiner is not convinced by Applicant's argument. As stated *supra* with respect to every claimed elements, Examiner finds that Kahn et al teach a first electrode 16 (fig. 1), a second electrode 18 (fig. 1), a liquid crystal layer 20 (a layer of liquid crystal material, fig. 1), an electrical current pulse through the electrode is used to generate heat in the liquid crystal (see fig. 1, col. 2, lines 45-47). One person of ordinary skill in the liquid crystal display (LCD) art to recognize that the molecular orientation of the liquid crystal layer 20 rotates when an electric field or electric current heat the liquid crystal cell is applied across it. This rotation switches or turns the molecular to change the polarization of the light passing through it. Thus, this type of the liquid crystal cell is active polarizing switching, which is also called a "a switchable polarizer" as claimed.

Art Unit: 2674

33. In response to applicant's argument that claim 17 recites "a switchable polarizing apparatus having a layer of liquid crystal material positioned between the first and second electrodes." Examiner is not convinced by Applicant's argument. As stated *infra* with respect to claim 17, Examiner finds that Kubota et al teach a liquid crystal capacity C_L as a liquid crystal element (see fig. 1, col. 8, lines 56-57). One person of ordinary skill in the liquid crystal display (LCD) art to recognize that the liquid crystal capacity C_L comprising a liquid crystal layer positioned between the first electrode of the capacitor C_L , which is connected to transistor TR_{pix} , and second electrodes of the capacitor C_L , which connected to ground. As mentioned earlier, a person of ordinary skill in the liquid crystal display (LCD) art to recognize that the molecular orientation of the liquid crystal layer rotates when an electric field is applied across it. This rotation switches or turns the molecular to change the polarization of the light passing through it. Thus, this type of the liquid crystal cell is active polarizing switching, which is also called a "a switchable polarizer" as claimed.

34. In response to applicant's argument that claim 13 recites "a switchable polarizer in one of two modes, switchable polarizer having first and second electrodes, wherein during a first driving mode, the electrodes heat the liquid crystal material, while during the second driving mode, the electrodes do not heat the liquid crystal material."

Examiner is not convinced by Applicant's argument. As stated *infra* with respect to claim 13, Examiner finds that the first electrodes 22, the second electrodes 28, and the liquid crystal layer 26 (fig. 2) therebetween two electrodes 22 and 28 (fig. 2). As stated *supra* with respect to claim 13, Examiner finds that Fergason et al teach a first driving mode

Art Unit: 2674

defined when both switches 40 and 50 are connected to the current source 56 and the video source 58 (fig. 2). Thus, there is current to generate heat in the liquid crystal layer 26 applied to first and second electrodes 22 and 28 (col. 4, lines 30-40). A second driving mode defined when both switches 40 and 50 are not connected to the current source 56 and the video source 58 (fig. 2). Thus, there is no current to generate no heat in the liquid crystal layer 26 applied to first and second electrodes 22 and 28, as modified by, Kahn discloses a convention of the LCD device which includes DC voltages (col. 3, lines 20) applied to a first electrodes 16 (fig. 1), and a second electrode 18 (fig. 1). The DC voltages includes a positive and a negative of the difference of electric potential between two points of one of electrodes 16 and 18. Thus, the positive voltage corresponds to the first voltage claimed, and the negative voltage corresponds to the second voltage as claimed.

35. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both Ferguson et al and Kahn et al teach the same type of LCD device which includes the current source or the voltage source applying to the first electrode, the second electrode, and the liquid crystal layer therebetween. One person of ordinary skill in the liquid crystal display

Art Unit: 2674

(LCD) art to recognize that both Fergason et al's reference and Kahn et al's reference are analogous arts, that is the reason and motivation to combine two references.

For these reasons, the rejections based on Kahn, Fergason et al, and Kubota et al have been maintained.

Conclusion

36. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

37. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 9:00-6:00 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2674

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see <http://portal.uspto.gov/external/portal/pair>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Nguyen
Patent Examiner
Art Unit 2674

KMN
February 1st, 2005



PATRICK N. EDOUARD
SUPERVISORY PATENT EXAMINER